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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/560,439

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EXAMINER

MAYEKAR, KISHOR

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/560,439	<b>Applicant(s)</b> GUTSOL ET AL.	
	<b>Examiner</b> Kishor Mayekar	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>05/06 &amp; 01/08</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because of the inconsistency of labeling Fig. 7a while the specification refers it as Fig. 7. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

2. The abstract of the disclosure is objected to because there are two abstracts in the application: one without reference characters and one with reference characters. Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities: the typo error in the phrase "in t reaction chamber 12" at line 21 of page 13 and the reference to non-existent Fig. 7.

Appropriate correction is required.

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

5. Claim 14 is objected to because of the following informalities: the missing of the phrase --and-- between the last two steps. Appropriate correction is required.

***Claim Rejections - 35 USC § 102 and § 103***

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6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-8 and 13-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Rabinovich et al. (U.S. Pat. 5,437,250), a reference cited by Applicant. Rabinovich's invention is directed to a rotary power system including a source of hydrocarbon fuel and a plasmatron for receiving the hydrocarbon fuel and reforming it into a hydrogen-rich gas. Rabinovich discloses that the plasmatron comprises the recited wall, outlet, reagent fluid inlet, first electrode, second electrode, power source, and a magnetic coil, where upon powering the plasmatron by the power source a plasma arc is created across the first and second electrodes and the plasma arc is rotated and stabilized by the

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magnetic coil (Figs. 8-9; c. 8, l. 18-43). Since the plasma arc is rotated, it reads on the recited sliding arc discharge as claimed in independent claim 1. Regarding independent claim 14, since gasoline is the hydrocarbon fuel, it reads on the recited light hydrocarbon, and since the plasma arc is generated at high temperatures, it is inherently reads on the recited plasma assisted flame.

As to the subject matter of each of claims 2, 4-6, 15 and 18, Rabinovich discloses it in Fig. 8-9 and c. 8, l. 18-43.

As to the subject matter of each of claims 3, 16 and 17, Rabinovich discloses it in Figs. 8-9.

As to the subject matter of claim 7, the space between the first and second electrodes reads on the recited gap.

As to the subject matter of claim 8, the arrangement of the first electrode with respect to the second electrode restricts the tangential air flow.

As to the subject matter of claim 13, Rabinovich discloses it as reference character 66 in Figs. 8-9.

9. Claims 1-11 and 14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Brown et al. (U.S. Pat. 6,793,898 B2). Brown's invention is directed to a compact plasma-based fuel reformer in which a fuel/air mixture is subjected to an electrical plasma arc that reforms the fuel/air mixture into a hydrogen-rich gas. Brown discloses the fuel reformer and a method thereof

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comprising all the recited structures and steps (Fig.1; abstract; c. 4, l. 64 through c. 6, l. 56).

As to the subject matter of each of claims 9-11, Brown discloses it in Fig. 1 and c. 6, l. 16-56.

10. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rabinovich '250 in view of Brown '898. The difference between Rabinovich as applied above and the instant claims is the limitation recited in each of the instant claims. Brown as applied above shows each of the limitations (fig. 1. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Rabinovich's teachings as shown by Brown because the selection of any known equivalent arrangements of the second electrode for introducing the vortex flow would have been within the level of ordinary skill in the art.

11. Claims 12 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rabinovich '250 in view of Hilliard (U.S Pat. 4,995,805). The difference between Rabinovich as applied above and the instant claims is the provision of the second electrode being a movable electrode as recited in each of the instant claims. Hilliard shows the limitation (Fig. 4 or 18 and c. 11, l. 18-41). The subject matter as a whole would have been obvious to one having

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ordinary skill in the art at the time the invention was made to have modified Rabinovich's teachings as shown by Hilliard because the selection of any known equivalent arrangements of the second electrode to stabilize the arc would have been within the level of ordinary skill in the art.

### **Conclusion**

12. Claims 1-19 are rejected.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.